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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/626,140	07/24/2003	Takahiro Fukagawa	35948	9327

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EXAMINER	
LIEW, ALEX KOK SOON	
ART UNIT	**PAPER NUMBER**
2624	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/01/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/626,140	FUKAGAWA ET AL.	
	Examiner	Art Unit	
	Alex Liew	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 December 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

The amendment filed on 12/27/06 is entered and made of record.

Response to Applicant's Arguments

1. On page 2, the applicant state: [Tsujikawa does not disclose a printing inspection data generating apparatus having a grouping means for classifying the element shape and position data into data groups grouped according to a grouping condition to identify individual data groups as recited in claim 9 ...]. The examiner disagrees with the applicant. Tsujikawa *groups* the electrode surface and solder cream together (see fig 8 – P1 and Q1 are grouped together, P2 and Q2 are grouped together, P3 and Q3 are grouped together, see fig 10 with col. 10 lines 45 – 63 – where it shows calculation of the needed shifting amount to the next electrode) in order to obtained a proper amount of shifting position to apply and to detect defects in miss placements of creams on the electrode surface. In addition, the shape of the electrode surfaces, P1 – 3 are squares, also shown in figure 18. A defect, the cream solder is placed in a position outside a predetermined range of the electrode surface, is detected when the positional shift is out of range, which requires correct *positional information* of the electrode surface to make a proper shift to the next electrode, and the cream applied thereon the electrodes does not conform to the correct shape / area, which requires the system to analyzes the *shape of the cream* applied onto the electrode surfaces, (see fig 15 – 26 and 27 and starting from col. 11 line 38).

The examiner is not convinced from the applicant's arguments and repeats the same rejection made in the non-final rejection mailed on 10/18/06.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 9 – 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Tsujikawa (US pat no 5,991,435).

With regards to claim 9, Tsujikawa discloses a printing inspection data generating apparatus for generating inspection data used in a printing inspection apparatus for inspecting a printing state of cream solder on a substrate after screen printing and containing shape and position data indicating shapes and positions of solder print portions formed by printing the cream solder on a printing surface (see fig 1A), said printing inspection data generating apparatus comprising

- data providing means for providing element shape and position data indicating shapes and positions of element solder print portions formed on respective electrodes provided on a circuit forming surface of said substrate to be used to bond electronic components (see fig 10 – points 82 – 85 are solder cream points

which are assigned position coordinates and the shapes indicated are shown in fig 17 a – c – triangle and rectangle) and

- grouping means for classifying the element shape and position data into data groups grouped according to a grouping condition to identify individual data groups (see fig 8 and 9 – the position of the electrode P1, P2 and P3 are on the three corners of the rectangular electronic board and grouped into one group)

With regards to claim 10, Tsujikawa discloses a printing inspection data generating apparatus according to claim 9, wherein the grouping condition is determined based on a geometrical range on the printing surface of said substrate (see fig 8 and 9 – the electronic board is rectangular and the geometrical range of the cream solders P1 – 3 are within the rectangular electrical board).

With regards to claim 11, Tsujikawa discloses a printing inspection data generating apparatus according to claim 9, wherein the grouping condition is determined based on an attribute of said electronic component (see fig 8 and 9 – the electronic board is rectangular which has solder creams on three corners which is grouped within the rectangular board – attribute is the shape of the electronic board).

With regards to claim 12, Tsujikawa discloses a printing inspection data generating apparatus according to claim 9, wherein the grouping condition is determined so as to

make one group for each of said electronic components (see fig 9 – data groups are P1 – 3 corresponds with electronic board 9).

With regards to claim 13, Tsujikawa discloses a printing inspection data generating apparatus according to claim 9, further comprising specific inspection data giving means for giving specific inspection data to the individual data group (see col. 10 lines 5 – 24 – the specific inspection data is the amount of shift from current cream solder to next cream solder in x and / or y axis).

With regards to claim 14 / 9, Tsujikawa discloses Tsujikawa discloses a printing inspection data generating apparatus according to claim 9, wherein said data providing means provides element shape and position data obtained based on mask opening data detected from a mask plate to be used for the screen printing (see fig 8 P1 – 3 are mask opening and cream solder are apply to each Q1 – 3, respectively – the mask plate is 9 in fig 8).

With regards to claims 14 / 10 – 13, see the rationale and rejection for claim 14 / 9.

With regards to claim 15, see the rationale and rejection for claim 9.

With regards to claim 16, see the rationale and rejection for claim 10.

With regards to claim 17, see the rationale and rejection for claim 11.

With regards to claim 18, see the rationale and rejection for claim 12.

With regards to claim 19, see the rationale and rejection for claim 13.

With regards to claim 20 / 15 – 19, see the rationale and rejection for claim 14 / 9.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1 – 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsujikawa (US pat no 5,991,435) in view of official notice (see MPEP 2144.43).

With regards to claim 1, Tsujikawa discloses a printing inspection apparatus for inspecting a printing state of cream solder on a substrate after screen printing, said apparatus comprising

- image pick-up means for picking up an image of said substrate (see fig 14 – 53),
- printing judging means for making a go/no-go judgment of the printing state based on an image pick-up result of said substrate from said image pick-up

means and inspection data needed to perform a printing inspection (see col. 6 lines 29 – 36 – if the cream solder covers over a certain amount of area then it is classified as failure otherwise it non-defective) wherein

the inspection data is generated by classifying element shape and position data, indicating shapes and positions of element solder print portions formed through printing on electrodes provided on a circuit forming surface of said substrate to be used to bond electronic components, into data groups grouped according to a grouping condition (see fig 10 – points 82 – 85 are solder cream points which are assigned position coordinates, fig 8 and 9 – the position of the electrode P1, P2 and P3 are on the three corners of the rectangular electronic board and grouped into one group).

Tsujikawa does not disclose displaying means display the judgment result in connection with the data groups. It is well known in the art to display results on the monitor screen whether the electronic board is a defective or not defective. It would have been obvious to one having ordinary skill in the art at the time of the invention was made to include displaying results means because to make it known to the operator who is inspecting the electronic component so the operator can redo the inspection operation until the electronic board is error free improving the quality of manufacturing production.

With regards to claim 2, Tsujikawa discloses a printing inspection apparatus according to claim 1 wherein the grouping condition is determined based on a geometrical range on a printing surface of said substrate (see fig 8 and 9 – the electronic board is rectangular and the geometrical range of the cream solders P1 – 3 are within the

rectangular electrical board) and said printing judging means makes a judgment of the printing state using a data group grouped as an inspection performance range (see col. 6 lines 29 – 36 – judging means is whether the electronic board is defective or not defective).

With regards to claim 3, Tsujikawa discloses a printing inspection apparatus according to claim 1, wherein the grouping condition is determined based on an attribute of said electronic components (see fig 8 and 9 – the electronic board is rectangular which has solder creams on three corners which is grouped within the rectangular board – attribute is the shape of the electronic board) and said printing judging means makes a judgment of the printing state using a data group grouped as an electronic component having an attribute specified as a subject to be inspected (see col. 6 lines 29 – 36 – judging means is whether the electronic board is defective or not defective).

With regards to claim 4, Tsujikawa discloses a printing inspection apparatus according to claim 1, wherein the grouping condition is determined so as to make a one-to-one correspondence between said electronic components and the data groups (see fig 9 – data groups are P1 – 3 corresponds with electronic board 9) and said display means displays the judgment result for each data group (see col. 6 lines 29 – 36 – judging means is whether the electronic board is defective or not defective).

With regards to claim 5, see the rationale and rejection for claim 1.

With regards to claim 6, see the rationale and rejection for claim 2.

With regards to claim 7, see the rationale and rejection for claim 3.

With regards to claim 8, see the rationale and rejection for claim 4.

Conclusion

This action is made final. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shorten statutory period for reply to this final action is set to expire three months from the mailing date of this action. In the event a first reply is filed within two months of the mailing date of this final action and the advisory action is not mailed until after the end of the three-month shorten statutory period, then the shorten statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however will the statutory period for reply expire later than six months from the mailing date of the final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alex Liew whose telephone number is (571)272-8623. The examiner can normally be reached on 9:30AM - 7:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Mancuso can be reached on (571)272-7695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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1/23/07

JOSEPH MANCUSO
SUPERVISORY PATENT EXAMINER